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CHROMOSOME ABERRATIONS AND ANEUPLOIDY IN SPERM OF HODGKIN'S DISEASE PATIENTS BEFORE AND ~15 YEARS AFTER MOPP-CHEMOTHERAPY ANALYZED BY MULTI-COLOR FISH.

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MOPP-chemotherapy includes potent mutagens which induce chromosomal abnormalities in human somatic and rodent germ cells. Sperm samples (five pre- and four post-treatment) from 8 Hodgkin's patients were analyzed using fluorescence in situ hybridization (FISH) to detect 3 categories of chromosomal defects in sperm: (1) terminal duplications or deletions in chr. 1p, (2) aneuploidy involving chr. 1 or 8, and (3) diploidy. In 3 pre-treatment and 2 post-treatment samples, each from a different donor, the levels of chromosomal damage were comparable to those of healthy controls. For one patient significantly higher proportions of sperm carrying structural chromosome aberrations were detected in a 15 years post-treatment sample, compared to his pre-treatment sample and pre-treatment samples of other patients. This patient also showed significantly elevated levels of hyperploid and diploid sperm in both his pre- and post-treatment samples. Elevated levels of diploid sperm were also observed in a pre-treatment sample of a second patient. In a 23 years post-treatment sample of another patient the fraction of sperm carrying chromosome aberrations was also significantly higher than in pre-treatment samples. To conclude, elevated frequencies of sperm with structural chromosome damage were observed in at least one patient, suggesting clonal outgrowth of chromosomal aberrant stem cells due to MOPP treatment. Although MOPP does not seem to increase numerical aberrations in sperm significant inter-individual differences were present among the Hodgkin's patient. [Work was performed under the auspices of the US DOE by Lawrence Livermore National Laboratory, contract W-7405-ENG-48]